NAME:_____

Circumference vs. Diameter

<u>Purpose</u>: To determine the graphical and mathematical relationship between diameter (cm) the independent variable and circumference (cm) the dependent variable.

Materials - string, cans, meter stick, metric ruler

<u>Procedures</u>
1. Each member will select a can and measure the diameter and circumference.
2. Measure the circumference:
    a. Align string along the lip of the can and run it around the can until the string meets with the other end and mark.
    b. Measure the length of this string in centimeters to the uncertain number using the metric ruler.
    c. Record the measurement in data table.
3. Measuring the diameter:
    a. Align metric ruler at zero on the inside of the can.
    b. Hold that end in place and move the other side of the metric ruler until it is aligned to the highest value on the inside of the opposite side of the can (straight across the middle).
    c. Record the measurement in data table.
4. Repeat steps 2 and 3 for all the cans.
5. Complete graph, draw best fit line.

Collection Data Table

Object	Circumference ( )	Diameter ( )

Graph data
(Hint – when drawing best fit line remember 0 circumference = 0 diameter)

Circumference

Diameter
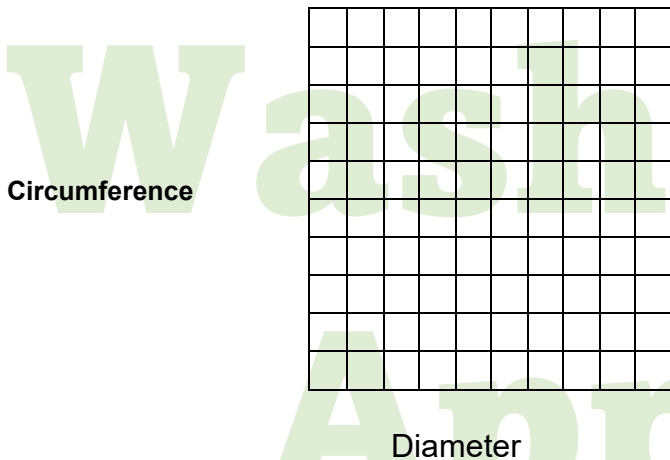
Conclusion:

1. Calculate slope (pick 2 points from your best fit line). SHOW YOUR WORK!!

2. What is the ratio for pi?

3. Why might your slope not equal the exact number for pi that is in your calculator?

4. Someone brings a huge pizza into the room and tells you that the diameter of the pizza is 2 meters. Use your knowledge of pi to calculate the circumference of the pizza.

5. Determine mathematically which you would rather have; 2 pizzas that each have a circumference of 36 cm OR one pizza with a diameter of 36 cm?